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1 - SAFETY CONSIDERATIONS

SAFETY PRECAUTIONS. PRIOR TO INSTALLING THE EQUIPMENT, WE ASK YOU TO TAKE THE FOLLOWING INTO CONSIDERATION:

- Before using this product, read and understand the instructions.
- Installation must be done by trained personnel.
- The equipment shall only be maintenance and service by Pegasus Control S.A. de C.V
- Make sure the hydraulic line is completely empty.
- Make sure all electrical input is disconnected.
- The workplace should be adequately ventilated.
- Avoid any source of ignition such as sparks, lit cigarettes, etc.
- If current is to be passed to the Bobtail truck, make sure the equipment is disconnected from the battery.

SPECIAL CONDITION OF USE

- It is end user's responsibility to select NRTL appropriate certified plugs or certified cable glands for all openings.
- It is end user's responsibility to isolated Input with metallic enclosure
- For EPL Gb, some of the external metallic enclosure parts materials, such as Button, contain more than 7.5 % in total of magnesium, titanium and zirconium. To avoid an ignition hazard due to impact or friction.

THIS EQUIPMENT IS SUITABLE FOR USE IN CLASS I, DIVISION I, GROUP D OR NON HAZARDOUS LOCATION ONLY

WARNING – EXPLOSION HAZARD - IF THE EQUIPMENT IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER OR THERE ARE ANY SUBSTITUTION OF COMPONENTS, MAY IMPAIR SUITABILITY FOR CLASS I, DIV1.

WARNING – EXPLOSION HAZARD – DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON HAZARDOUS

WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES – VOIR INSTRUCTIONS

WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT
AVERTISSEMENT – NE PAS OUVRIR EN PRÉSENCE D'UNE ATMOSPHÈRE EXPLOSIVE

2 - STANDARDS LIST

- Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations [UL 1203:2013 Ed.5+R:05Apr2022]
- Explosive Atmospheres – Part 0: Equipment – General Requirements [UL 60079-0:2019 Ed.7+R:15Apr2020]
- Explosive Atmospheres - Part 11: Equipment Protection by Intrinsic Safety "i" [UL 60079-11:2013 Ed.6+R:14Sep2018]
- Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements [UL 61010-1:2012 Ed.3+R:06Jun2023]
- Explosion-proof Equipment [CSA C22.2#30:2020 Ed.4]
- Explosive Atmospheres — Part 0: Equipment — General Requirements [CSA C22.2#60079-0:2019 Ed.4]
- Explosive Atmospheres - Part 11: Equipment Protection by Intrinsic Safety "i" (R2018) [CSA C22.2#60079-11:2014 Ed.2]
- Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use Part 1: General Requirements [CSA C22.2#61010-1-12:2012 Ed.3+U1;U2;A1;U3]

¿What is Ri505A?

This Register was built for the purpose of making the highest technology and solutions to your operating problems available. This Register offers modernized operations for selling LPG from Bobtails trucks. Just like all Pegasus equipment, it has the highest safety in each of its points, bringing you maximum dependability at the time of operations.

With this equipment the ability to handle different kinds of flow meters (MFM, pulse, oscillating piston, etc.) is almost transparent, offering the levels of accuracy required in today's market, to have proper control during sales and payments. But even more important the operation is the same, no matter what kind of meter is being used.

In short, we have put the highest LPG technology in your hands for operations and sales to be as simple and accurate as possible.

Main features

- 2 relays for two-stage shut down.
- Plus input from Electronic Air Release, TBD.
- Volume correction by Temperature using external RTD.
- Storage capacity for up to 900 events and 1200 services.
- No-contact card reader to authorize deliveries.
- 2 serial ports available for Printer and Auxiliary device.
- Handles Epson TMU295 and Epson TM-T88V.*
- High-resistant keyboard.
- Utmost safety in each of its parts.
- Heavy-duty terminal.
- Low maintenance.
- High-precision measuring.
- Two Operation modes: Basic mode and System mode.

Environmental conditions

- Outdoor use.
- Altitude up to 3 000 m;
- Temperature -20°C to 50°C;
- Maximum relative humidity 50 %
- Mains supply voltage fluctuations between 10-30Vdc.
- Pollution degree 2.
- IP55 allows wet locations.

Electric Features

Minimum input voltage	10Vdc
Nominal input voltage	12Vdc / 24Vdc
Maximum input voltage	30Vdc
Nominal current	1.2 A (without accessories, valves and meter)
Maximum current	4.00 A peak (with accessories, valves and meter)
Valves voltage output	12Vdc/24Vdc(same input voltage)@1.0A
Printer voltage output	24Vdc@3.00A

*** Ticket printing only works in basic operation mode; otherwise, the Pegasus mobile terminal must be purchased.**

RTD Temperature probe

- 3 wires PT100.
- 100 ohms @ 0 °C

Communication

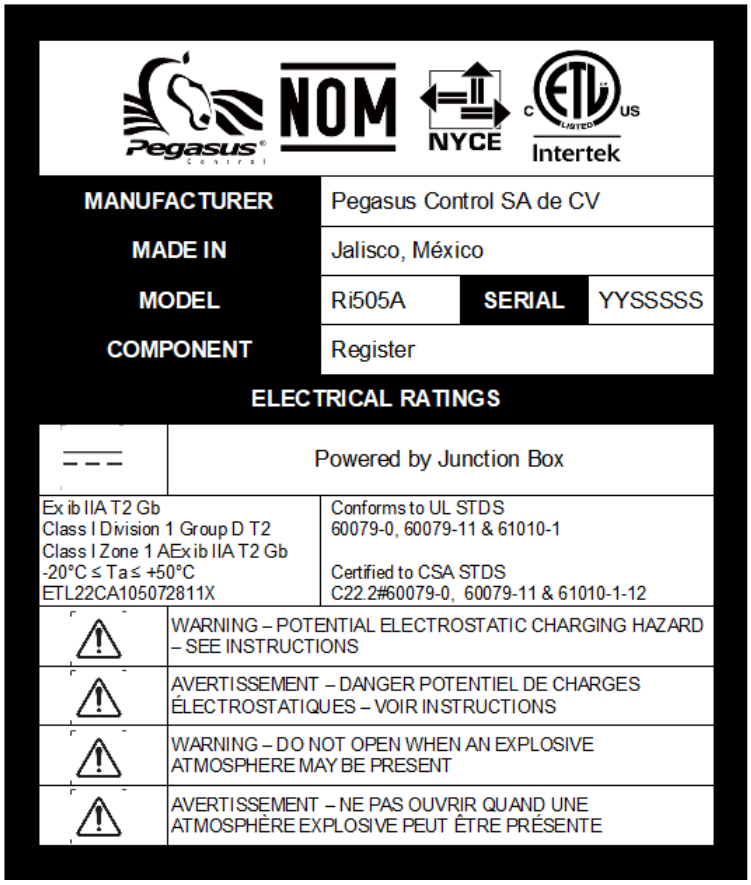
- RS-232
- RS-485
- Bluetooth Classic 2.1 (wireless)
- Bluetooth Low Energy 4.0 (wireless)

Printer

- Voltage: 24 VDC
- Current: 3.0 A Max
- Serial: Rs232

Serial Number Plates

Register



4 - SPECIFICATIONS

Junction box

MANUFACTURER	Pegasus Control SA de CV
MADE IN	Jalisco, México
MODEL	Ri505A
COMPONENT	Junction Box

ELECTRICAL RATINGS

⎓	VOLTAGE	10-30 VDC	
	CURRENT	1.2 A	IP CODE: IP55
-20°C ≤ Ta ≤ +50°C ETL22CA105072811X		Conforms to UL STDS 61010-1 Certified to CSA STDS 61010-1-12	

⚠	WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
⚠	AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES – VOIR INSTRUCTIONS
⚠	WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
⚠	AVERTISSEMENT – NE PAS OUVRIR QUAND UNE ATMOSPHÈRE EXPLOSIVE PEUT ÊTRE PRÉSENTE

PD Coreprocessor

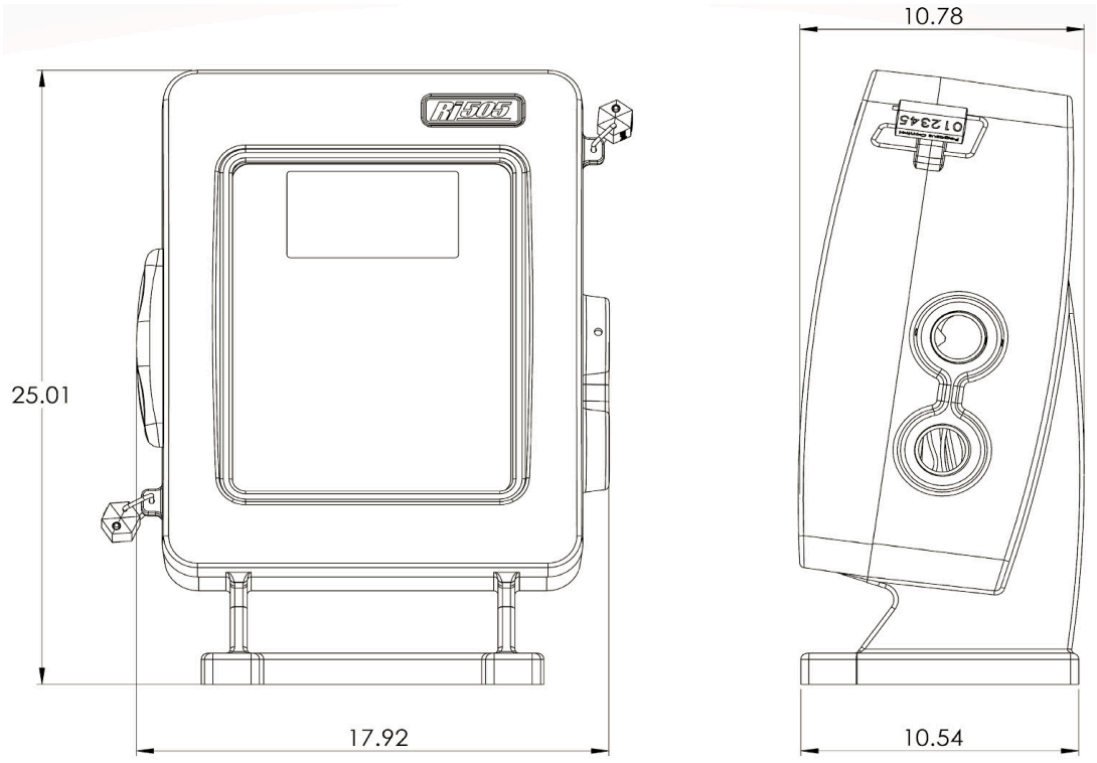
MANUFACTURER	Pegasus Control SA de CV		
MADE IN	Jalisco, México		
MODEL	PD Coreprocessor	SERIAL	YYSSSSS
USE WITH	Ri505A or GS One		
ELECTRICAL RATINGS	⎓ Powered by Junction Box		

Ex ib IIA T2 Gb Class I Division 1 Group D T2 Class I Zone 1 AEx ib IIA T2 Gb -20°C ≤ Ta ≤ +50°C ETL22CA105072811X	Conforms to UL STDS 60079-0, 60079-11 & 61010-1 Certified to CSA STDS C22.2#60079-0, 60079-11 & 61010-1-12

⚠	WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
⚠	AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ÉLECTROSTATIQUES – VOIR INSTRUCTIONS
⚠	WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT
⚠	AVERTISSEMENT – NE PAS OUVRIR QUAND UNE ATMOSPHÈRE EXPLOSIVE PEUT ÊTRE PRÉSENTE

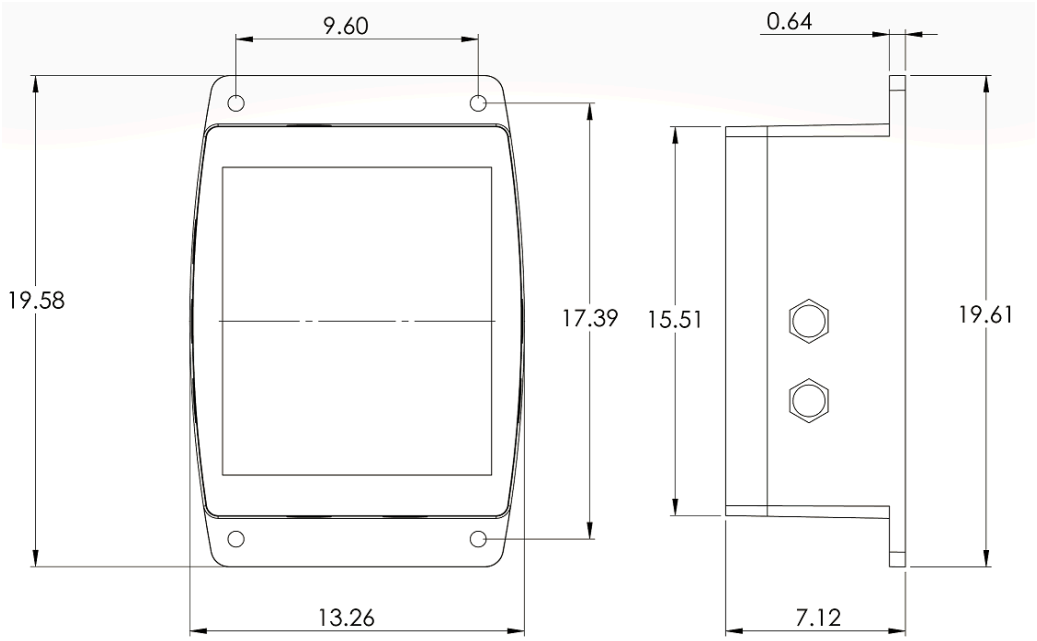
Dimensions

- **Register**



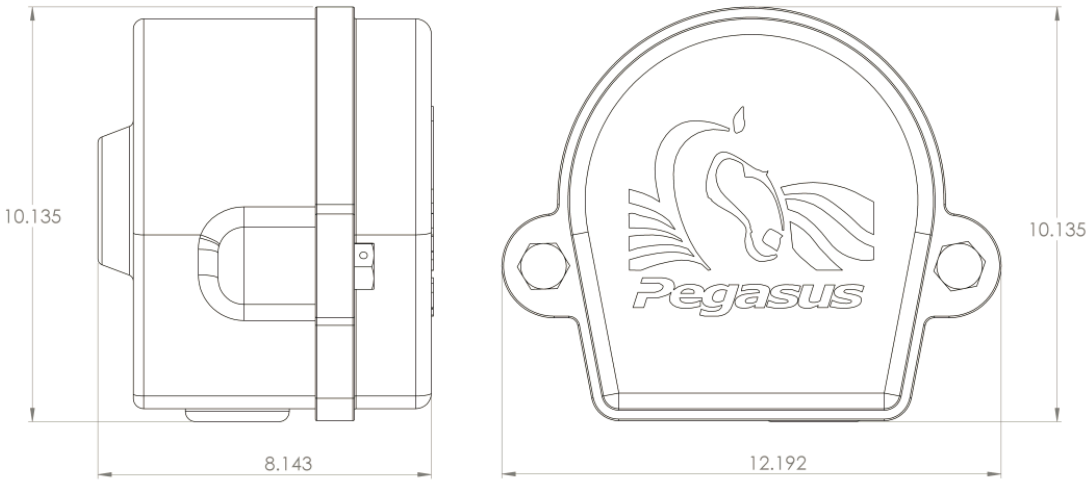
(units in cm)

- **Junction Box**



(units in cm)

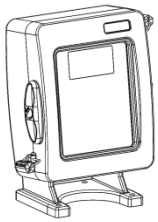
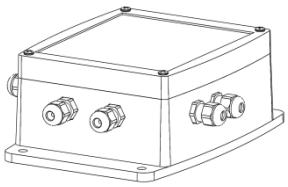
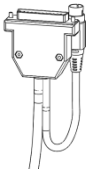
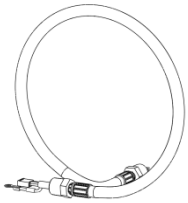
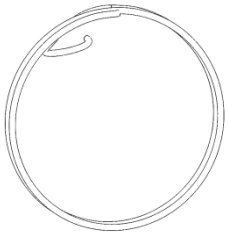
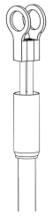
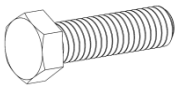
- **PD Coreprocessor**



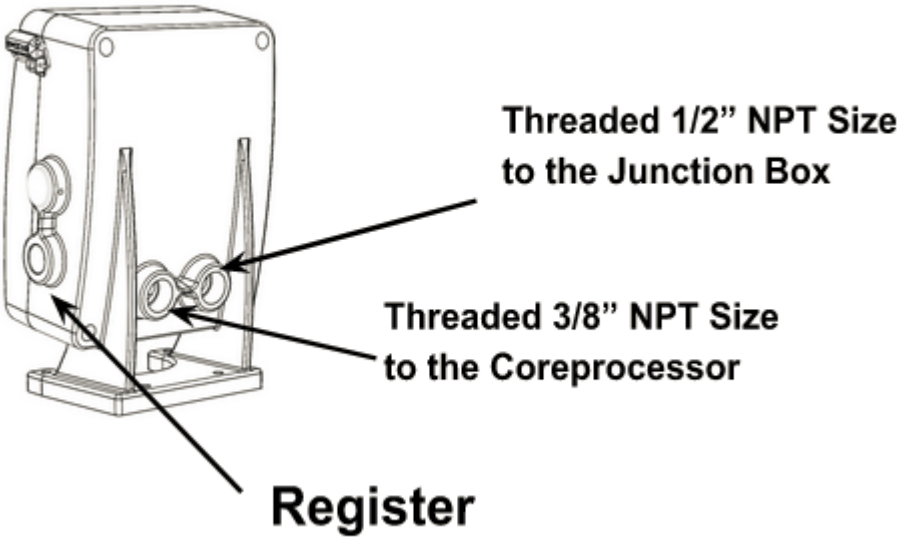
(units in cm)

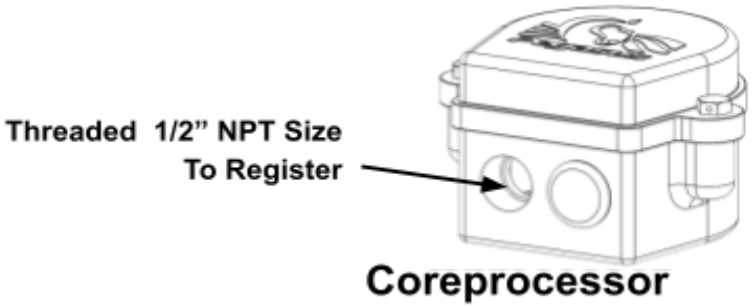
Components Included

You will find the following items when unboxing the Ri505A.

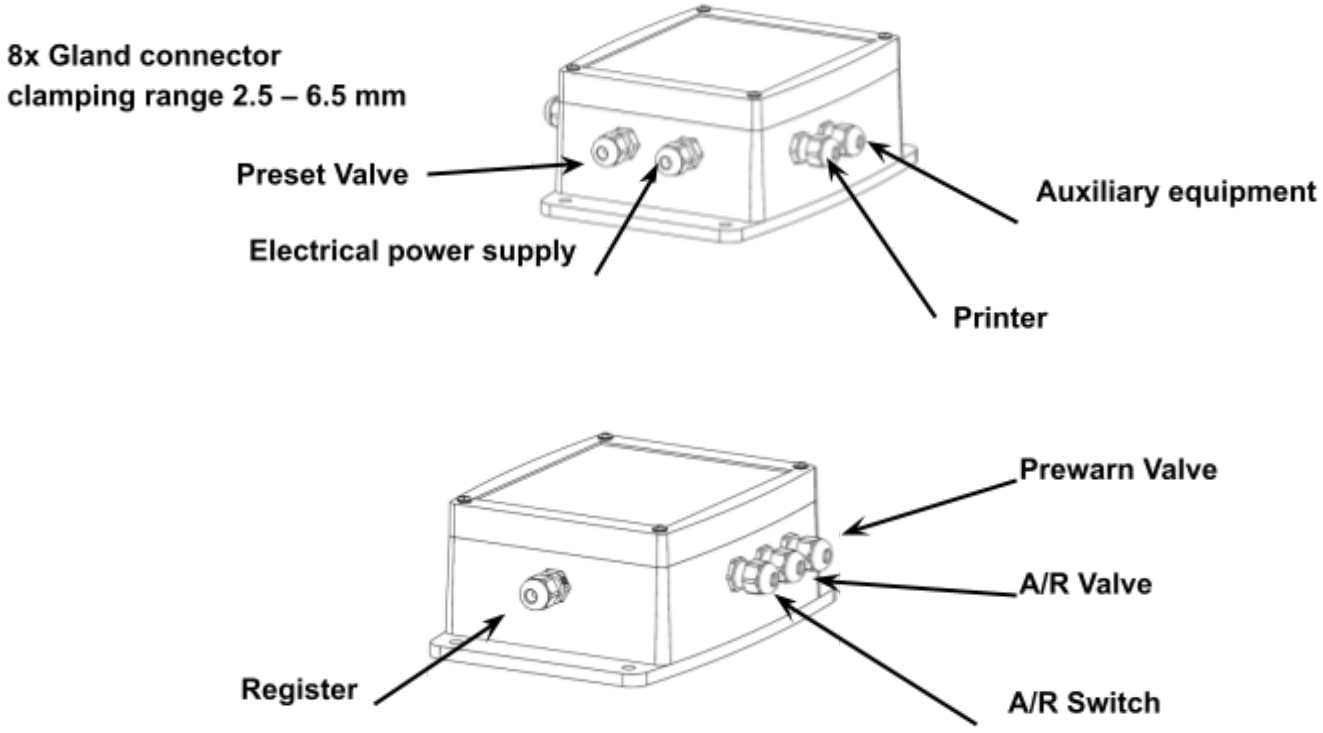
Components included	
 Register	 Junction Box.
 Printer Cable	 4x22 armored cable (Register – Meter)
 8x22 armored cable (Register – Junction Box)	 2x18 armored cable power supply (Bobtail truck Battery – Junction Box)
 Two RfID tags.	 Installation screws.

Signaling Connections



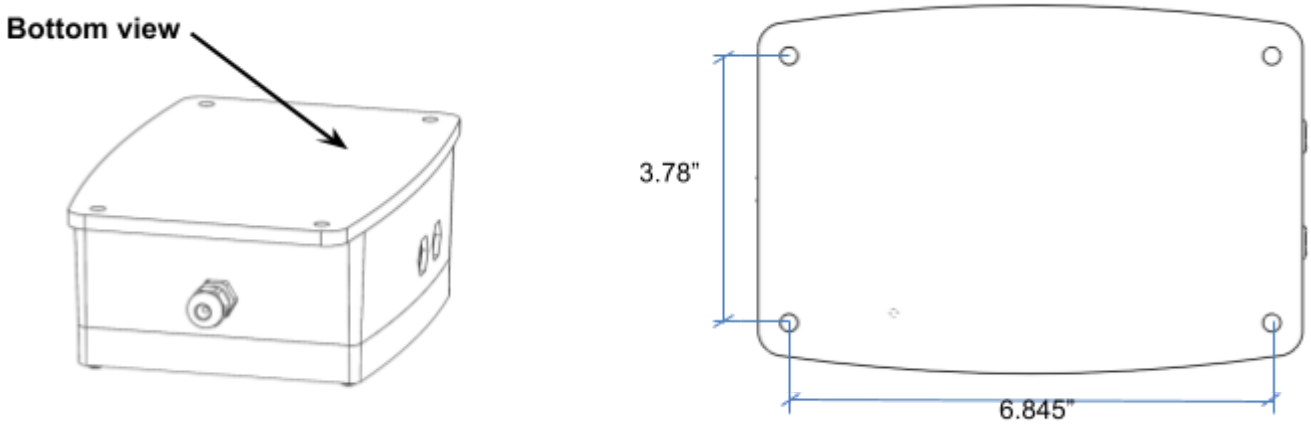


Junction box

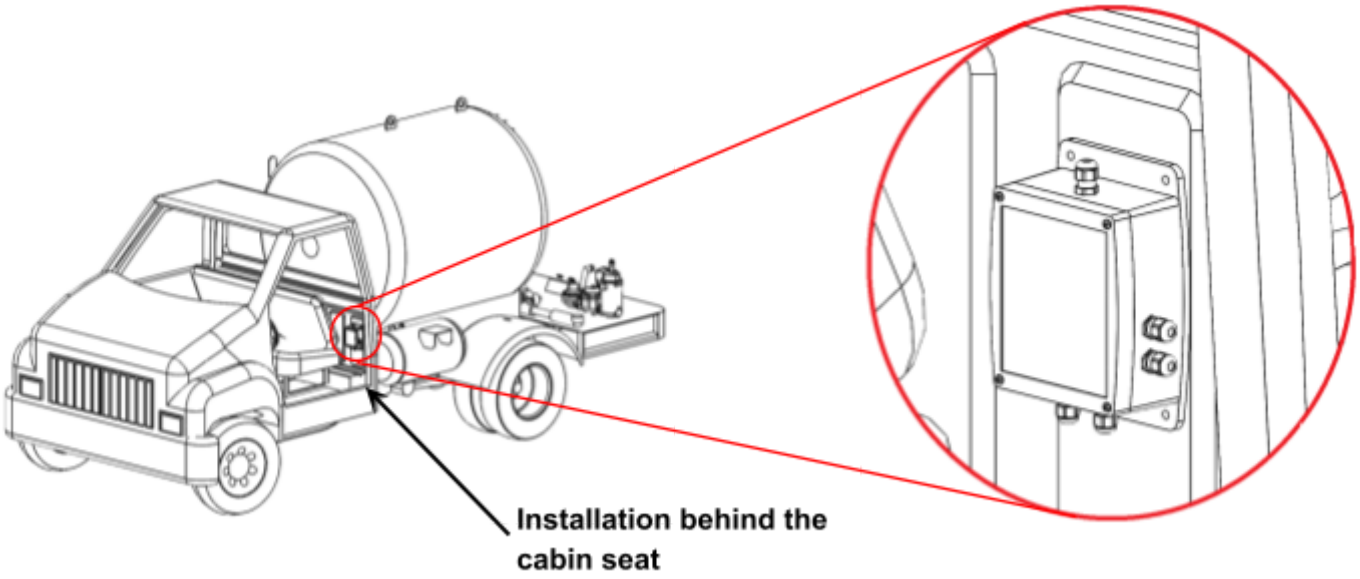


Mechanic Installation

- **Junction Box:**



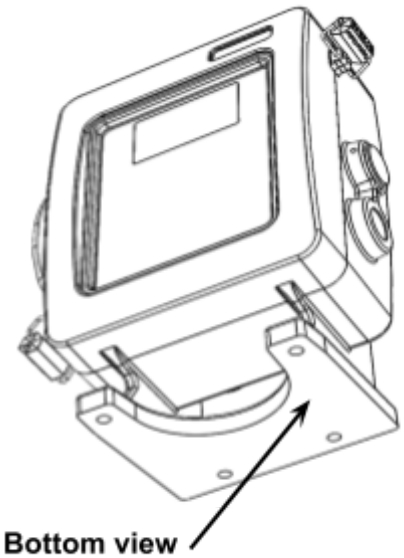
1. Use the bottom of the junction box to make the mark for 4 holes of 0.250” to install the junction box.

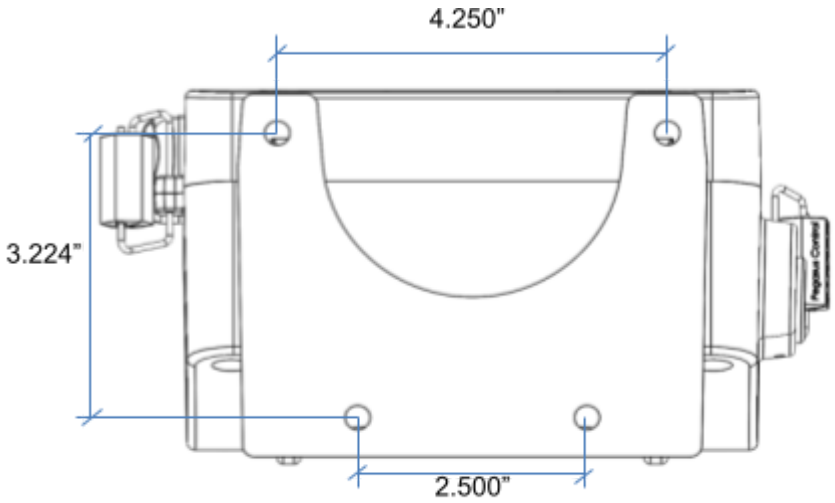


2. Drill the holes and install the junction box in the cabin with the side of two connectors to down; use 8-32 by 2” screws (included)

6 - INSTALLATION

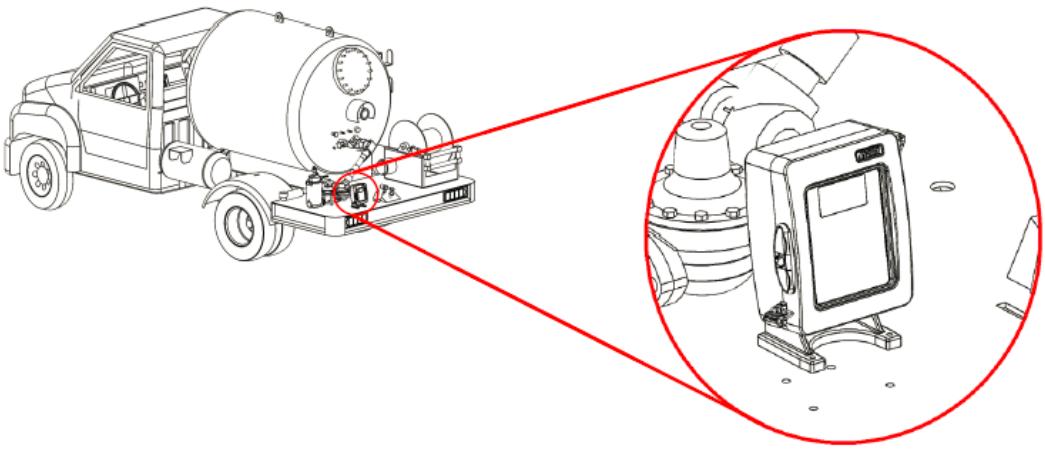
- **Register:**





a) Use the bottom of the register to make the mark for 4 holes of 0.350” to install the register.

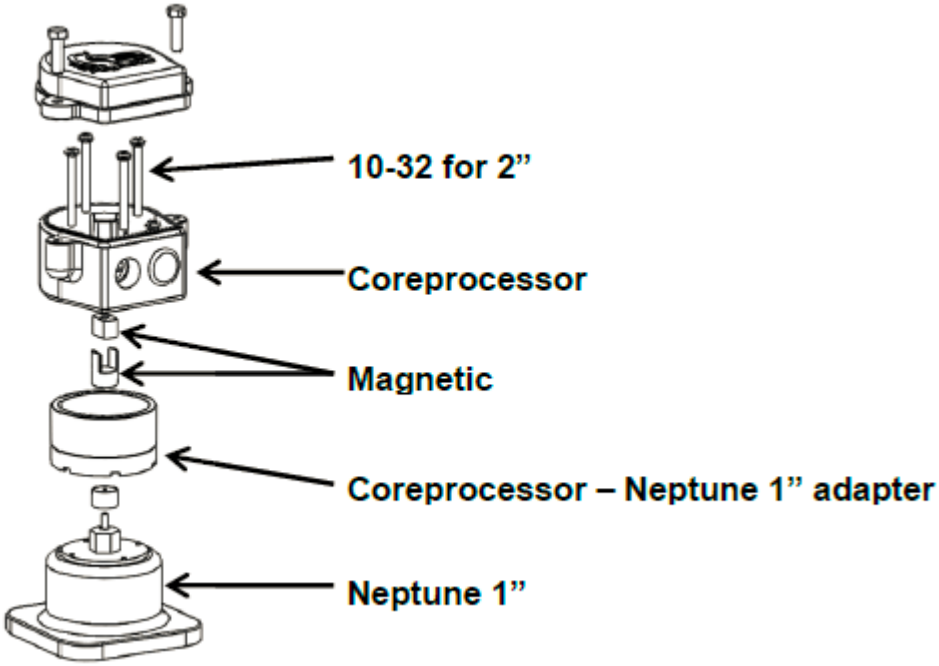
b) Drill the holes and install the register in the back side of the bobtail, use 1/4" by 1 1/5” screws (included)



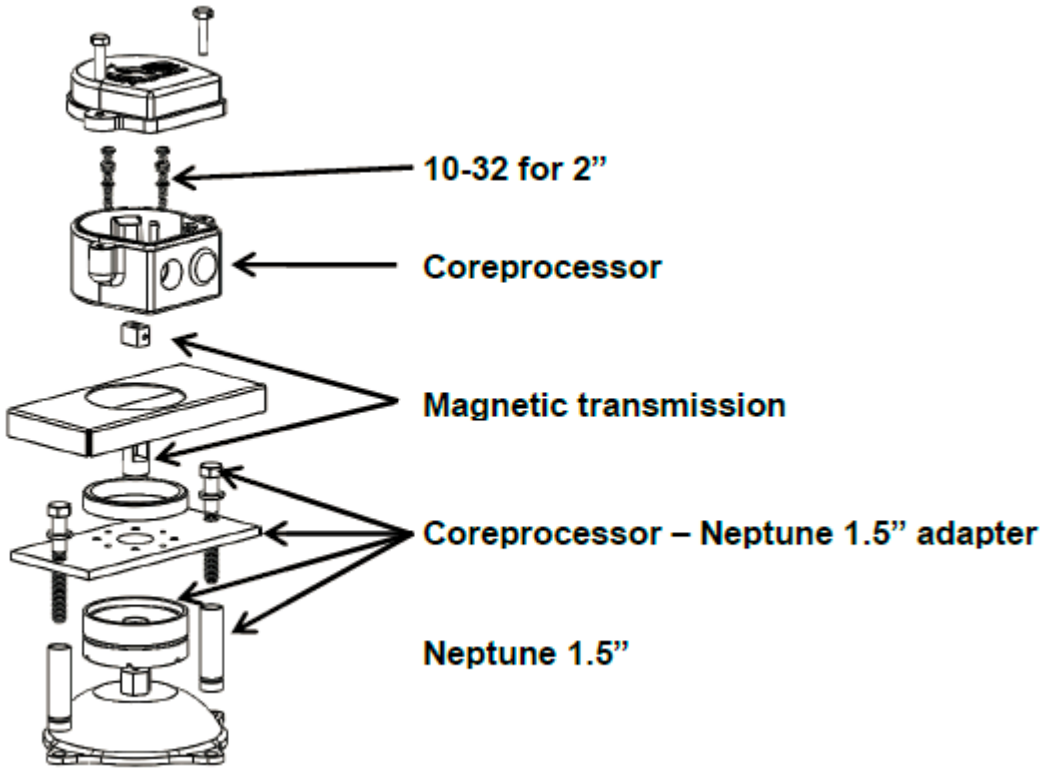
- **Coreprocessor in Neptune PD Meters:**

To install the coreprocessor on the Neptune meters need different adapters (sold separately)

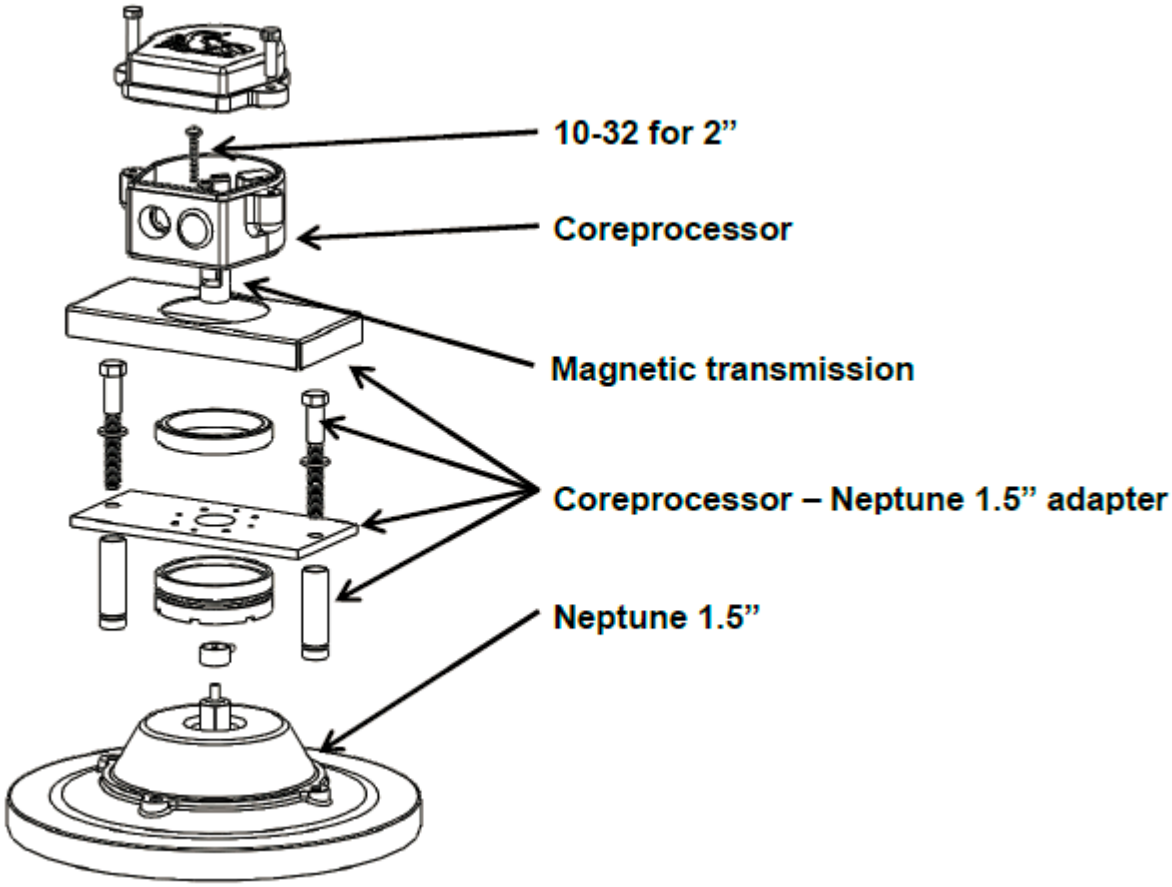
Neptune 1”



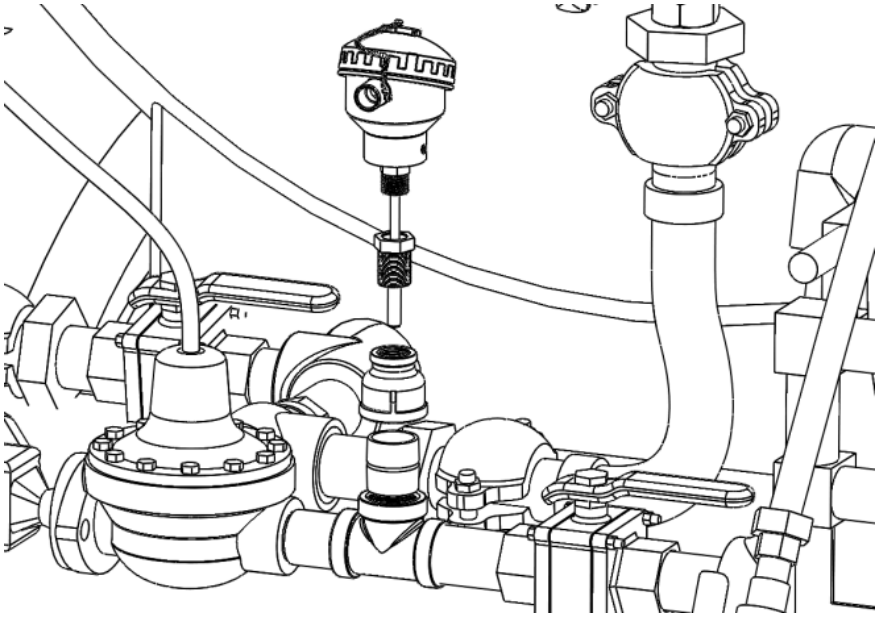
Neptune 1.5”


10-32 for 2”
Coreprocessor
Magnetic transmission
Coreprocessor – Neptune 1.5” adapter
Neptune 1.5”

Neptune 2.0”

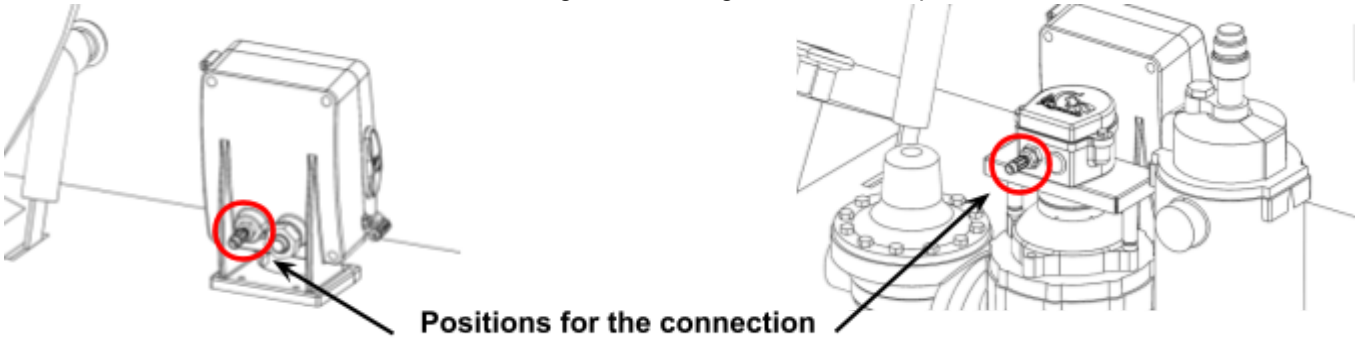

10-32 for 2”
Coreprocessor
Magnetic transmission
Coreprocessor – Neptune 1.5” adapter
Neptune 1.5”

- **RTD**

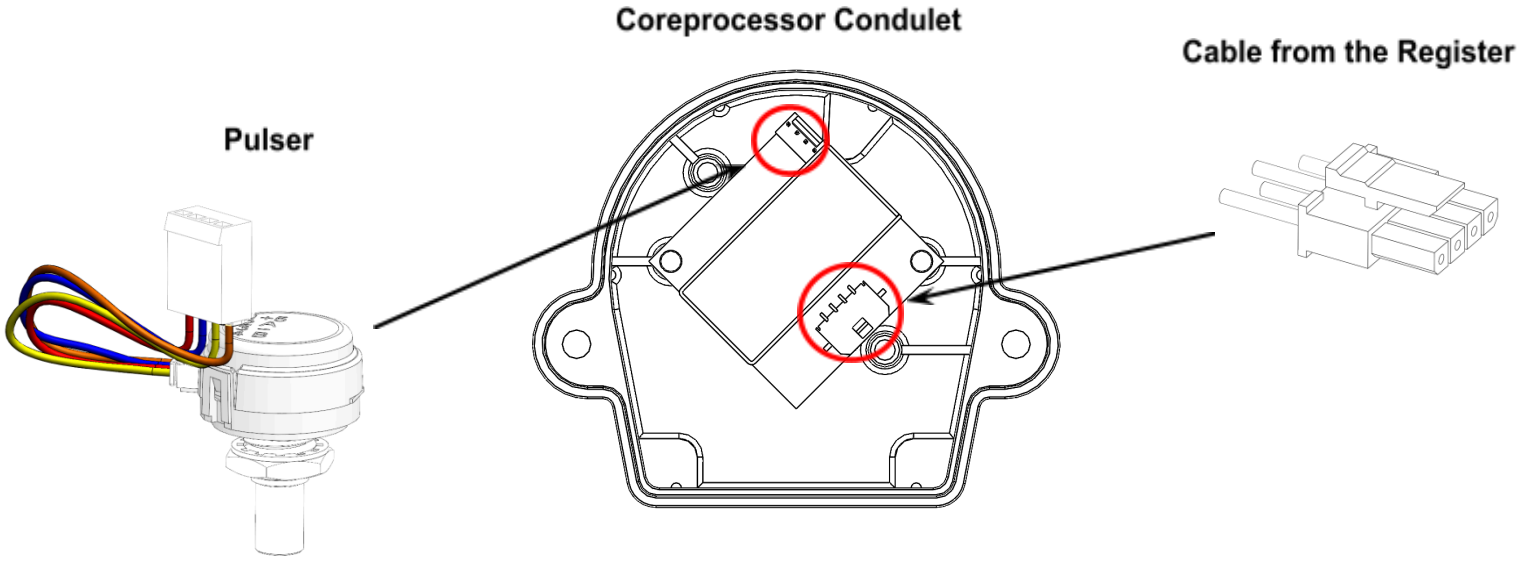


Connections

- **Coreprocessor – Register**
  - Connect the metallic hose coming from the Register to the coreprocessor condulet

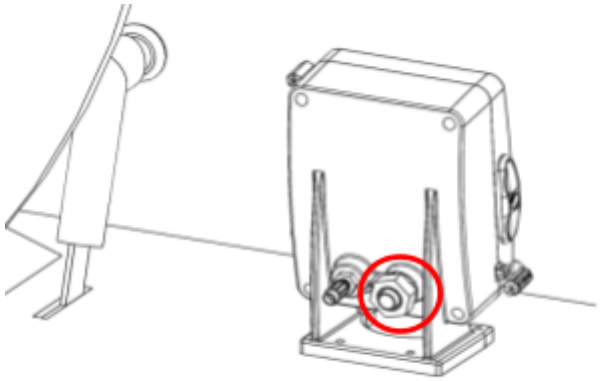


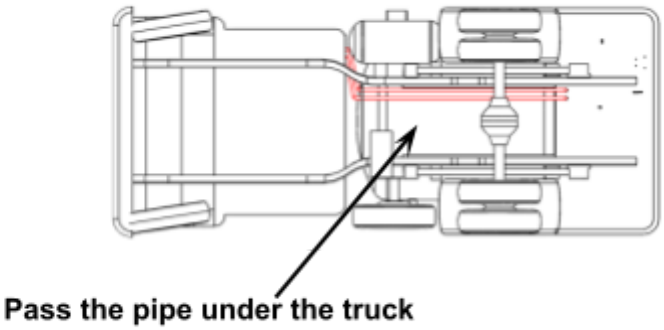
  - Open de coreprocessor condulet and connect the cable from the metallic hose to the coreprocessor board in the positions indicated by the image



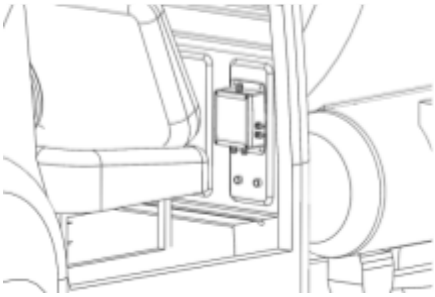
6 - INSTALLATION

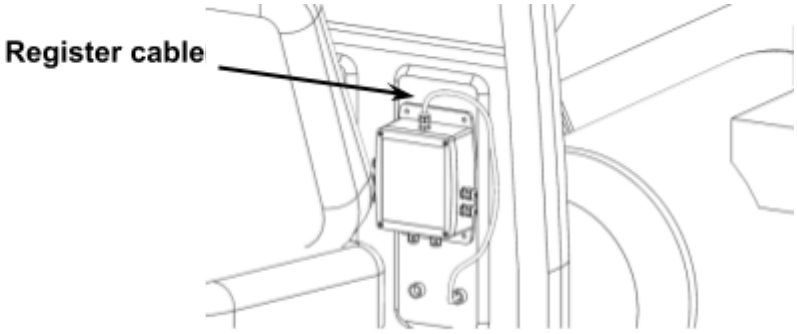
- **Register – Junction Box**
  - Pass the cable that comes from the register through an explosion-proof hose, to the cabin



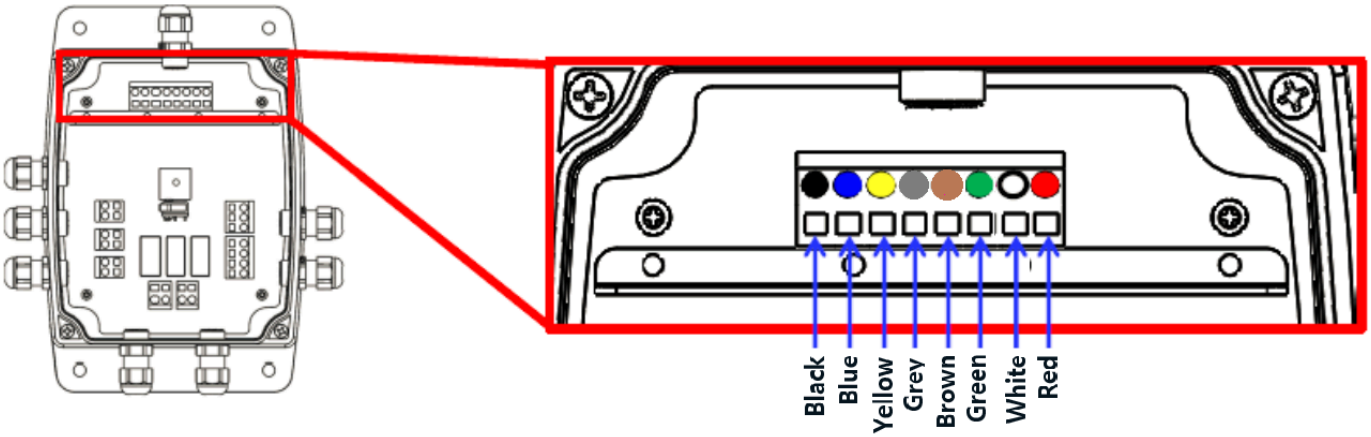


  - Make two holes in the cabin to pass the explosion-proof hose
  - Pass the cable through the upper gland connector

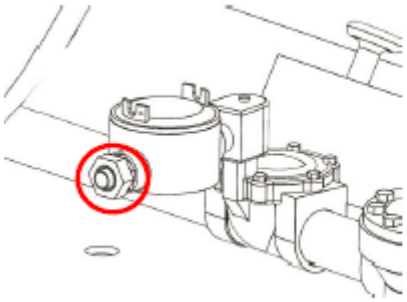


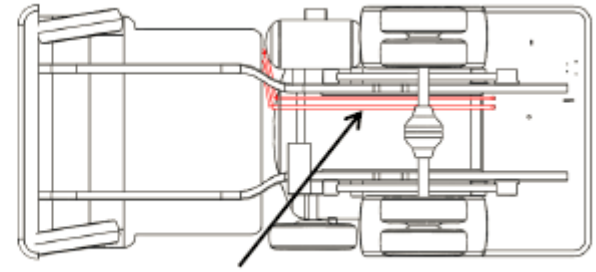


- Make the wiring connections as shown in the picture

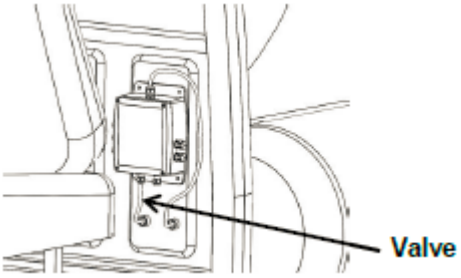


- **Junction Box – Valve**
  - Install an explosion-proof condulet in the coil of the valve to make the connections between the cable of the valve and the extension cable
  - Pass the extension cable through an explosion-proof hose

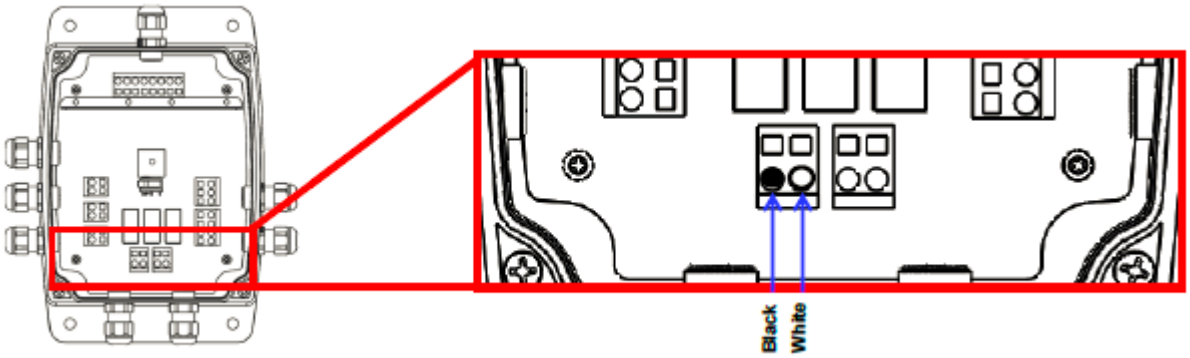




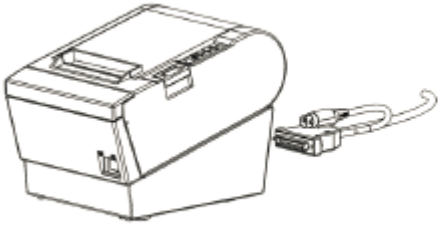
  - Pass the cable through the Left connector from the bottom side

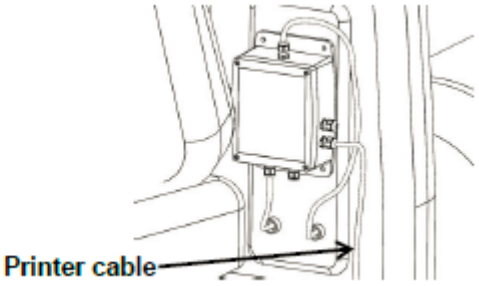


  - Make the wiring connections as shown in the picture

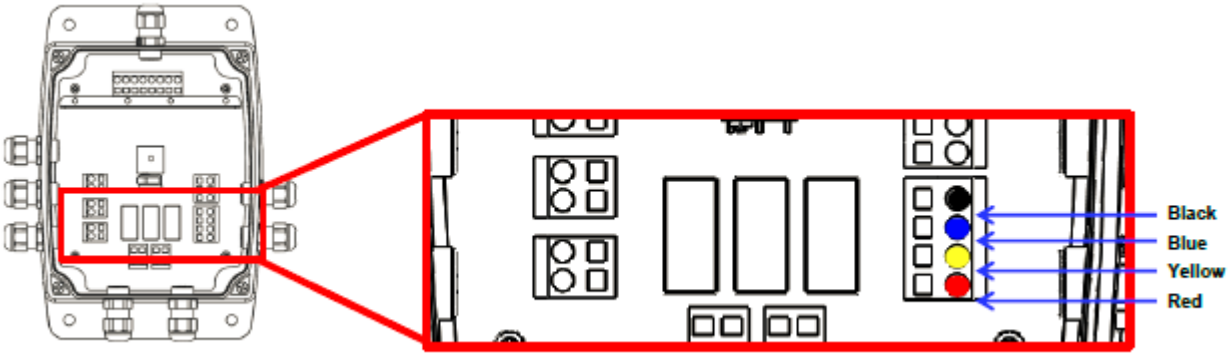


- **Junction Box – Printer**
  - Connect to the printer the cable included
  - Routes the printer cable to the junction box, and pass the cable through the lower connector on the right side

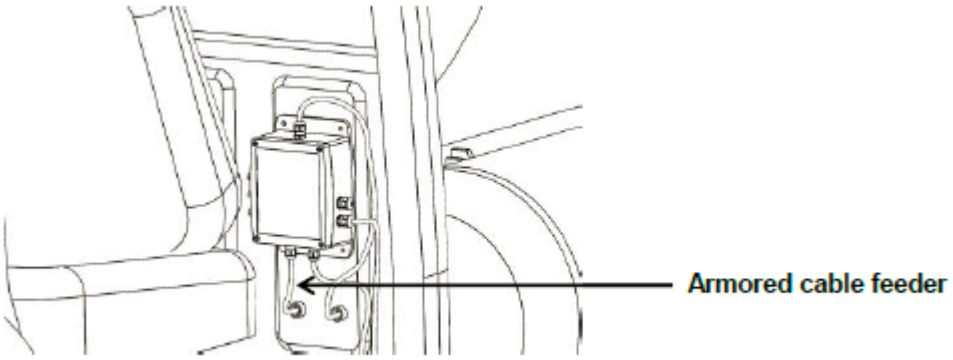




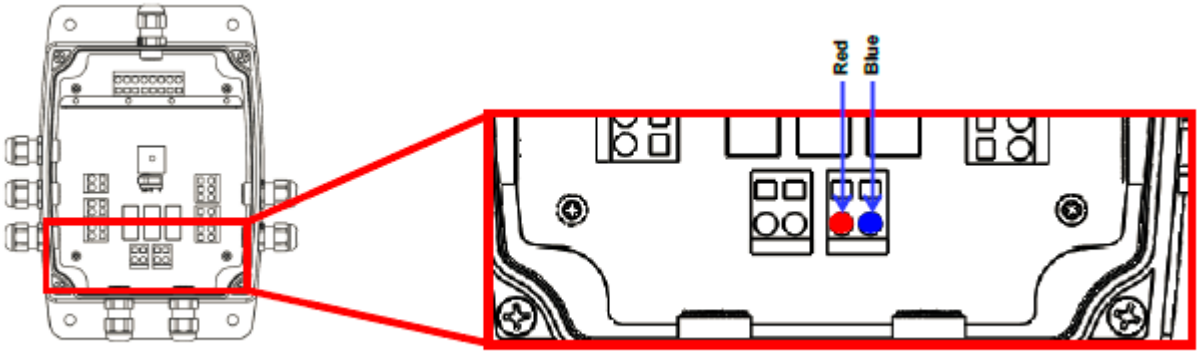
  - Make the wiring connections as shown in the picture



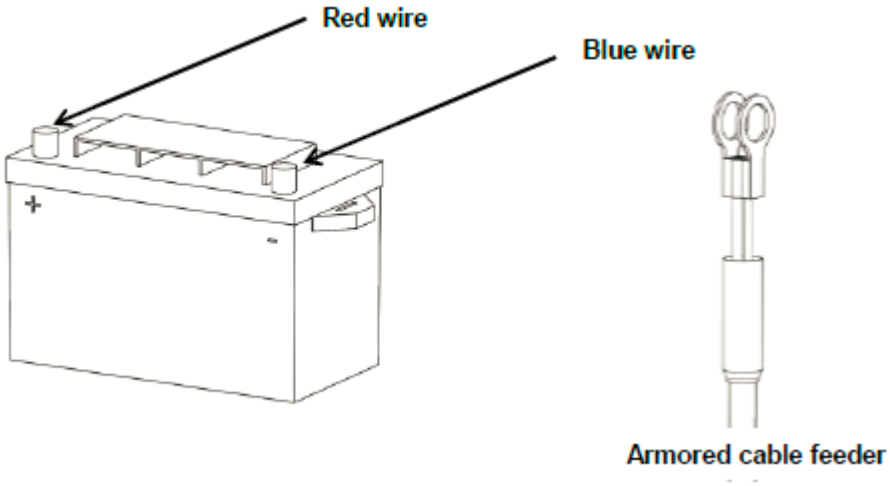
- **Junction Box – Power supply**
  - Routes the supply cable to the junction box, and pass the cable through the right connector from the bottom side



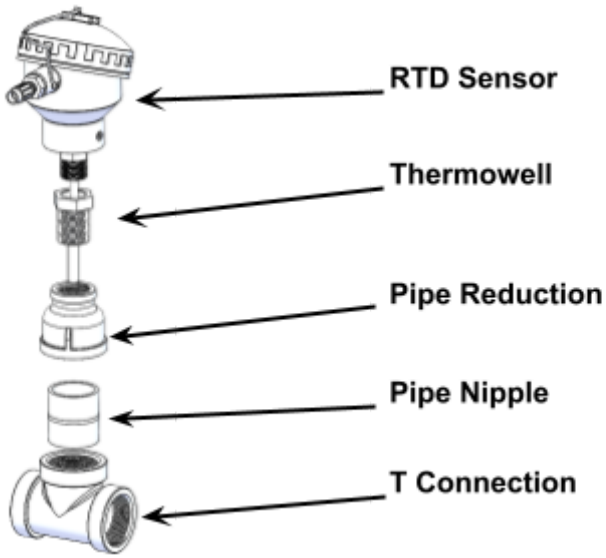
  - Make the wiring connections as shown in the picture



- Make the connection of the cable and the battery, connecting the red cable to the positive pole, and the blue cable to the negative pole



- **RTD – PD Coreprocessor:** The RTD is an accessory to help in the measurement of LPG, compensating for temperature changes
    - Place a T connection on the hydraulic pipeline to add a branch
    - Put a reduction to can connect the thermowell and the sensor of temperature



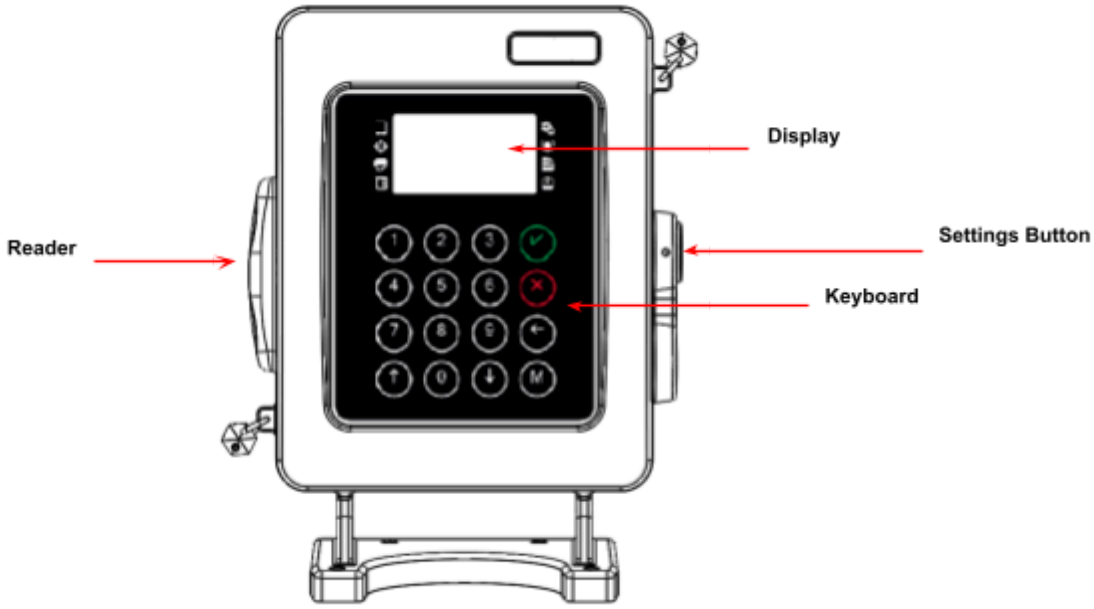
    - Make the wiring connections as shown in the picture
    - Cut the security mechanical seals and open the register
    - Put the explosion-proof hose in the connector in the connector on the right side

CLEANING

WARNING: Never use gasoline, solvent, abrasive cleaning agents, metal objects or hard brushes to clean the Register.

- Turn off the Register.
- Wipe with a damp cloth. A mild detergent may be used if the Register gets very dirty. Avoid using sprays and other harsh cleaning agents as they may cause stains, marks, and opaqueness on the surface and on the keyboard.

Register Parts



- **Display:** It is the user's graphic control to communicate with Ri505A. All operating and configuration functions are shown on it. The screen lights up automatically when the equipment is in use, enabling you to navigate through all its functions quite easily.

- **Keyboard**: It gives access to the system by allowing the user to enter information needed to configure and use the equipment.
    - Numeric Keys: They are used to establish numerical values in operations
    - Special Keys
        - Up Arrow
        - Down Arrow
        - Left Arrow (backspace)
        - Green Button
        - Red Button
        - Menu
- **Settings Button:** This button is used to access metrological menus.

- **Reader:** This is the RfID Tag Reader, used to authorize the deliveries. The proximity reader is located on the register's left side**.**

Menus

- **BASIC MODE**

  - **Initial Menu:**
    - **Init Delivery:** For initializing the sequence to start a delivery. Need to choose a price, type the prefix value and place the RfID Tag for authorization.
    - **Start/End Route:** For start or end of the operation day.
    - **Events Report:** For print a report with all the events saved by the Ri505A.
    - **Services Report:** For print a report with all the services from the last Route Started.

  - **Admin Menu:** In this section are all the menus for no meteorology parameters.
    - Truck Number: This is a number to identify the Bobtail truck. Range: 0000-9999.
    - Prices: The Ri505A can store up to 10 prices, which can be used in a delivery. Range: 0000.0001 to 9999.9999
    - Tax: This is the tax that will be broken down from the total in the sales ticket rang: 00.1%-99.9%
    - Time zone: This is the correspondent time zone where the Ri505A will be used. Range -11 to +11.
    - Language: This is the language of the User Interface. Values: English, Spanish.
    - Use printer: This is the option for use or not the Printer.
    - End of Service Time: When during a delivery there is no flow of LGP, this is the time out for finishing this delivery, after that all valves are closed. Range: 5-255 seg.
    - Change password: In this menu, you can change the actual password for Admin menus

  - **Maintenance Menu:** In this section are all the menus for meteorology parameters, this section needs that the config switch was pressed.
    - **Meter Kind**: In this menu, you can select between PD meter or Mass Flow Meter.
    - **MFM Model:** This menu is shown if the Mass Flow Meter was configured, and you can choose the model of the meter: Options: RML2000, SFT100, SFT200.
    - **Measurement Kind:** This menu is shown if the Mass Flow Meter was configured, and you can choose the kind of measurement for the deliveries. Options: Volume or Mass.
    - **Measurement Unit:** In this menu you can choose the measurement unit for show on display and print on ticket. Values: Liters or Gallons for Volume, Kilograms or Pounds for Mass.
    - **Flow Direction:** This menu is shown if PD Meter was configured, and you can configure if the PC chamber has left rotation or right rotation.
    - **Auto Calibration:** This menu is shown if PD Meter was configured, and you can auto configuration the calibration factors using a main meter reference.
    - **Factor A and B:** The Factor A is a multiplying factor and the Factor B is a dividing factor for the calibration and they are used how the next formula shows:

$$Measurement = 512 \times \frac{Factor\ A}{Factor\ B}$$

    - **Ref Density:** This value is taken for the Compensation Volumetric Temperature algorithm for the process.
    - **Ref Temperature:** This value is taken for the Compensation Volumetric Temperature algorithm for the process.
    - **Set to Zero:** In this menu, you can start the zeroing process on the Mass Flow Meter.
    - **Change password:** In this menu, you can change the actual password for Maintenance menus.

8 - OVERVIEW

- **SYSTEM MODE:**
    - **Menu:**
        - Pressing the “M” key on the MAIN SCREEN,
        - PLACE TAG message will appear on the screen and an authorized tag must be presented near the reader to be able to use the register.
        - After being validated as a registered user, the screen will ask for the access password to be entered (It will vary depending on the permits assigned to the tag the user presents and it may not ask for the access password).
        - After the user types his password, will be shown the menus configured for this user. If the user is authorized to modify metrologic parameters, the config Switch needs to be pressed previously to the access.

Basic configuration

a) **Metter**
- Press the "M" key twice, type the password: eight times the number 2, ("22222222").
- Locate the option "Meter Type" and press the green key to access.
- With the "arrow up" key select the type of meter desired, positive displacement meter, mass meter.
- Press the "red" key to exit the menu.

b) Price
- Press the "M" key twice, type the password: eight times the number 1, ("11111111").
- Locate the "Price" option and access using the "green" key.
- Select the price option you want to update and press the "green" key to access, type the new price and confirm the change with the "green" key.
- Press the "red" key to exit the menu.

c) Tax
- Press the "M" key twice, type the password: eight times the number 1, ("11111111").
- Locate the "Tax" option and select the "green" key to access.
- Enter the new tax and press the "green" key to confirm the change.
- Press the "red" key to

d) Date and time zone
- Press the "M" key twice, type the password: eight times the number 1, ("11111111").
- Locate the "time zone" option and press the "green" key to access.
- Enter the new time zone, use the "arrow up" key to change from "+" to "-" and vice versa.
- Confirm the change with the "green" key

e) Password
- Press the "M" key twice, type the password: eight times the number 1, ("11111111").
- Locate the "password change" option and access it using the "green" key.
- Enter a new password, it must contain 8 digits, at the end of the system you will be asked to confirm the new password.
- Enter the new password and press "green" key to confirm the change

Meter configuration

a) **Type of measurement (only MFM)**
- Press the "M" key twice, type the password: eight times the number 2, ("22222222").
- Locate the option "Type of Measurement" and press the "green" key to access.
- With the "arrow up" key select the type Volume or Mass.
- Press the "red" key to exit the menu

b) **Units of measurement**
- Press the "M" key twice, type the password: eight times the number 2, ("22222222").
- Locate the option "Unit of measurement" and press the "green" key to access.
- If you have set the mass measurement type you will have the options of Kilograms and Pounds, if you select the Volume option you will have the options of Liters and US Gallons.
- Use the "arrow up" key to select the desired unit of measurement.
- Press the "red" key to exit the menu.

c) **Direction of rotation (for PD Coreprocessor meter)**
- Press the "M" key twice, type the password: eight times the number 2, ("22222222").
- Locate the "direction of rotation" option and press the "green" key to access.
- With the "arrow up" key select the meter rotation, Left or right as the case may be ".
- Press the "red" key to exit the menu

d) **Calibration**
- Press the "M" key twice, type the password: eight times the number 2, ("22222222").
- Locate the "Calibration" option and press the "green" key to access.
- Present the Tag to start a fuel assortment.
- Press the "red" key to stop the assortment, and then type in the quantity in liters indicated by the standard meter, and then confirm the calibration by means of the "green" key.
- Press the "red" key to exit the menu.

Operation:

a) **BASIC MODE:**

- Before beginning the delivery, check that the Printer is turned on and has paper.
- Make all hydraulic connections required to begin the service.
- Press the M key.
- Select Start Delivery option and press Green key.
- Choose the number of the Price to use in the Delivery, press numeric key.
- Type the Preset value for amount to delivery, or press Down key for Preset value of measurement. Left zero value for a Non Preset delivery.
- Place the Tag in the Reader, to confirm and Start the Delivery.
- The screen will begin to count the measurement and amount being provided.
- Delivery will end when the Preset value is reached or the Red key is pressed.
- The respective note for the service provided will print out automatically.

Error Code List

Event Code	Description	¿When will it happen?
0x000	Register Start-up	This event occurs when the equipment is completely off and later turned on.
0x013	Junction Box opened	This event warns the equipment and occurs when someone tries to open the distributor casing
0x014	Junction Box closed	The event records when the casing was closed
0x017	PD Coreprocessor opened	This event occurs when someone opens the PD Coreprocessor casing.
0x018	PD Coreprocessor closed	The event records when someone's PD Coreprocessor casing was closed.
0x01F	Time zone change. User ID (6). Previous Time zone(3) New Time zone(3)	This event occurs when a user changes the time zone on the equipment.
0x020	Price change. User ID (6) Price number (2), Previous price (8), New price (8)	This event occurs when a user changes the price in the equipment's data field. First we see the user ID, price number, previous price and new price.
0x021	Tax Change. User ID (6) Previous VAT (3), New VAT (3)	This event occurs when a user changes the tax in the equipment's data field. First we see the user ID, tax number, previous tax and new tax.
0x022	Truck number change. User ID (6), Previous number (4), New number (4)	This event occurs when a user changes the truck number. The data we can see are the user, the previous truck number and the new truck number.
0x025	Factor A change. User ID (6) Previous Factor A (4), New Factor A (4)	The Factor A change is recorded; we can see it when the event report is printed out.
0x026	Factor B change. User ID (6) Previous Factor B (4), New Factor B (4)	The Factor B change is recorded; we can see it when the event report is printed out.
0x03F	Auto-calibration	This event occurs when a user completes an auto-calibration process.
0x04C	Error on Flow Flow value (5)	This event occurs when the flow during the delivery is below or above the Low or High Flow parameter respectively.
0x04D	Start of Non-authorized Flow.	This event occurs when the Register detects a non-authorized flow.
0x04E	End of Non-authorized Flow. Measurement reported (8)	This event occurs when the non-authorized flow is stopped, and says the value of the measurement registered.
0x052	Price change by mobile app	Price change by mobile app
0x053	Tax change by mobile app	Tax change by mobile app
0x054	Min Flow value change	This event occurs when the PDA changes the Ri505 minimum flow through GCS
0x055	Max Flow value change	This event occurs when the PDA changes the Ri505 maximum flow through GCS

0x05F	Factor P change. User ID (6) Previous Factor P (4), New Factor P (4)	The Factor P change is recorded; we can see it when the event report is printed out.
0x066	Init of shift Odometer (6) Tank level (4) Volume totalizer(8) Mass totalizer(8) User ID(6)	This event occurs when a user does the Init of Shift over the register menu, or by the mobile app.
0x067	End of shift Odometer (6) Tank level (4) Volume totalizer(8) Mass totalizer(8) User ID(6)	This event occurs when a user does the End of Shift over the register menu, or by the mobile app.
0x068	Order canceled Order ID(12)	This event occurs when the user cancels an Order for delivery loaded by mobile app.

11 - REVISION HISTORY

Rev.	Date	Comments
2v0	14/02/24	Initial document
2v1	22/02/24	- Revision history added. - Standard lists added. - Guidance for the user to minimize the risk from electrostatic discharge. - Special conditions of use. - Warnings in English and French. - Statement of the range of environment.
2v2	11/03/24	- Serial number plates updated.
2v3	08/07/25	- Ticket printing using external printers is specified only in basic operation mode